

Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PC-8930	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/JP2003/010451	International filing date (day/month/year) 19 August 2003 (19.08.2003)	Priority date (day/month/year) 21 August 2002 (21.08.2002)
International Patent Classification (IPC) or national classification and IPC C08G 63/02, 63/78, C08L 67/00		
Applicant DAINIPPON INK AND CHEMICALS, INC.		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising: a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows: <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application

Date of submission of the demand 24 February 2004 (24.02.2004)	Date of completion of this report 08 March 2004 (08.03.2004)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2003/010451

## Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is language of a translation furnished for the purpose of:

- ☐ international search (under Rules 12.3 and 23.1(b))  
☐ publication of the international application (under Rule 12.4)  
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☒ The international application as originally filed/furnished

☐ the description:

pages \_\_\_\_\_, as originally filed/furnished

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ the claims:

pages \_\_\_\_\_, as originally filed/furnished

pages\* \_\_\_\_\_, as amended (together with any statement) under Article 19

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ the drawings:

pages \_\_\_\_\_, as originally filed/furnished

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages \_\_\_\_\_

☐ the claims, Nos. \_\_\_\_\_

☐ the drawings, sheets/figs \_\_\_\_\_

☐ the sequence listing (*specify*): \_\_\_\_\_

☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages \_\_\_\_\_

☐ the claims, Nos. \_\_\_\_\_

☐ the drawings, sheets/figs \_\_\_\_\_

☐ the sequence listing (*specify*): \_\_\_\_\_

☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.  
PCT/JP 03/10451

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Claims	1-7	YES
	Claims		NO
Inventive step (IS)	Claims	1-7	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-7	YES
	Claims		NO

### 2. Citations and explanations

Document 1: JP 2002-97350 A (Dainippon Ink and Chemicals, Inc.), 02 April 2002

#### Claims 1 and 2

The invention that is set forth in claims 1 and 2 involves an inventive step in relation to document 1 cited in the international search report.

Document 1 does not disclose a molding resin that has a microphase separated structure in which one of either the polyhydroxycarboxylic acid structural units (I) or the polyester structural units (II) that are derived from a dicarboxylic acid and a diol forms domains within a matrix which is formed by the other structural units, wherein the average domain diameter of said domains is within a range of 0.08-5.00 $\mu$ m. Meanwhile, the invention that is set forth in claims 1 and 2 of the present application exhibits advantageous effects such as a superior impact-resistance, flexibility and biodegradability as a result of this feature.

#### Claims 3-5

The invention that is set forth in claims 3-5 involves an inventive step in relation to document 1 cited in the international search report.

Document 1 does not disclose a feature wherein a molten mixture of a polyhydroxycarboxylic acid and a polyester with hydroxyl groups at both terminals that is obtained by reacting a dicarboxylic acid and a diol is subjected to an esterification reaction in the presence of an esterification catalyst and under conditions of reduced pressure, and said esterification reaction is continued until the point in time where when the strain of the resin is varied from 1 through to 60%, the reaction product exhibits a storage elastic modulus  $G'(M\%)$  at a strain of  $M\%$  ( $1 < M \leq 60$ ) that is within a range from 90 to 100% of the value of the storage elastic modulus  $G'(1\%)$  at a strain of 1% as measured using a rotational rheometer under measurement conditions wherein the frequency is 1Hz and the temperature is between the melting point of said reaction product and a temperature 50°C above the melting point of said reaction product. Meanwhile, the invention that is set forth in claims 3-5 of the present application exhibits an advantageous effect whereby it is possible to produce a molding resin that exhibits a superior impact-resistance, flexibility and biodegradability as a result of this feature.

#### Claims 6 and 7

The invention that is set forth in claims 6 and 7 involves an inventive step in relation to document 1 cited in the international search report.

Document 1 does not disclose a polyester composition that has a microphase separated structure in which one of either the polyhydroxycarboxylic acid structural units (I) or the polyester structural units (II) that are derived from a dicarboxylic acid and a diol forms domains within a matrix which is formed by the other structural units, wherein the average domain diameter of said domains is within a range of 0.08-5.00 $\mu\text{m}$ . Meanwhile, the invention

that is set forth in claims 6 and 7 of the present application exhibits advantageous effects such as a superior impact-resistance, flexibility and biodegradability as a result of this feature.